What is claimed is:

1.   A CAD system which processes a two-dimensional
design plane/three-dimensional design space configured
by   referring   to   another   two-dimensional   design
plane/three-dimensional design space, comprising:

an   intra-model   correspondence   management   unit
managing   correspondence   between   a   two-dimensional
design plane and a three-dimensional design space for
the same target; and

an inter-model reference management unit managing
reference between models configured by at least one
two-dimensional   design   plane   and   three-dimensional
design space for the same target.

2.   The CAD system according to claim 1, wherein
said   correspondence   is   a   spatial   attribute   of
each two-dimensional design plane in a model.

3.   The   CAD   system   according   to   claim   1,   further
comprising:

an   automatic   assembly   unit   generating   three-
dimensional   reference   between   a   three-dimensional
design space of a first model and a three-dimensional
design   space   of   a   second   model   according   to   two-

dimensional reference of a plurality of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and

5   correspondence in the second model.

4.   The CAD system according to claim 3, wherein said automatic assembly unit automatically assembles a three-dimensional design space belonging

10   to the first model using two-dimensional reference of a plurality of two-dimensional design planes belonging to the first model, and the correspondence in the first model.

15   5.   The CAD system according to claim 4, wherein said automatic assembly unit, sequentially from a model in a lowest hierarchical level in reference, determines a placement vector in a referenced-from three-dimensional design space from correspondence in

20   a referenced-from model determines a reference vector in a three-dimensional design space of the referenced-to model from correspondence in a referenced-to model, generates a conversion matrix of the placement vector and the reference vector, and assembles a three-

25   dimensional design space of the referenced-from model

based on the conversion matrix.

6.   The CAD system according to claim 1, wherein when one of the two-dimensional reference and the three-dimensional reference is performed between the models, said inter-model reference management unit performs other two-dimensional reference and three-dimensional reference between the models corresponding to a prior referencing operation.

7.   The CAD system according to claim 6, wherein said inter-model reference management unit automatically performs the other two-dimensional reference and three-dimensional reference between the models corresponding to the prior referencing operation.

8.   The CAD system according to claim 6, wherein said inter-model reference management unit performs the other two-dimensional reference and three-dimensional reference between the models interactively with a designer corresponding to the prior referencing operation.

9.   The CAD system according to claim 6, wherein

said inter-model reference management unit notifies a designer of consistency corresponding to the prior referencing operation.

5   10.   The CAD system according to claim 1, further comprising

a new reference setting unit setting consistent reference, when new reference is set between a first design plane/space which is one of a two-dimensional

10   design plane or a three-dimensional design space belonging to a third model and a second design plane/space which is one of a two-dimensional design plane or a three-dimensional design space belonging to a fourth model, between a two-dimensional design

15   plane and a three-dimensional design space other than the first design plane/space belonging to the third model and a two-dimensional design plane and a three-dimensional design space other than the second design plane/space belonging to the fourth model based on the

20   new reference, the correspondence in the third model, and the correspondence in the fourth model.

11.   The CAD system according to claim 1, wherein

a   plurality   of   two-dimensional   design

25   planes/three-dimensional design spaces belonging to

the model are specified to be edited based on the correspondence in the model.

12. The CAD system according to claim 1, wherein when an element specified in a two-dimensional design plane or a three-dimensional design space belonging to a fifth model is moved to a newly generated sixth model, said inter-model reference management unit sets inter-model reference between the fifth model and the sixth model.

13. The CAD system according to claim 12, wherein when said sixth model is generated, said intra-model correspondence management unit sets intra-model correspondence of the sixth model.

14. The system according to claim 12, wherein when said sixth model is generated, a designer is instructed to maintain spatial consistency of each of the two-dimensional design planes and the three-dimensional design spaces belonging to the sixth model.

15. A cooperative system which maintains cooperation of graphics data between a two-dimensional CAD and a

three-dimensional CAD, comprising:

an intra-model correspondence management unit managing correspondence between a two-dimensional design plane by a two-dimensional CAD and a three-

5   dimensional design space by a three-dimensional CAD for the same target; and

an inter-model reference management unit managing reference between models configured by at least one two-dimensional design plane and three-dimensional

10   design space for the same target.

16.   The cooperative system according to claim 15, further comprising

a three-dimensional reference generation unit

15   generating three-dimensional reference between a three-dimensional design space of the first model and a three-dimensional design space of the second model according to two-dimensional reference of a plurality of two-dimensional design planes belonging to a first

20   model to a two-dimensional design plane belonging to a second model, correspondence in the first model, and correspondence in the second model.

17.   The cooperative system according to claim 16,

25   wherein

said automatic assembly unit automatically assembles a three-dimensional design space belonging to the same model using two-dimensional reference of a plurality of two-dimensional design planes belonging

5   to the same model, and the correspondence in the model.

18.   A CAD system which processes a two-dimensional design plane/three-dimensional design space configured

10   by referring to another two-dimensional design plane/three-dimensional design space, comprising:

intra-model correspondence management means for managing correspondence between a two-dimensional design plane and a three-dimensional design space for

15   the same target; and

inter-model reference management means for managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.

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19.   A cooperative system which maintains cooperation of graphics data between a two-dimensional CAD and a three-dimensional CAD, comprising:

intra-model correspondence management means for

25   managing correspondence between a two-dimensional

design plane by a two-dimensional CAD and a three-dimensional design space by a three-dimensional CAD for the same target; and

5   inter-model reference management means for managing reference between models configured by at least one two-dimensional design plane and three-dimensional design space for the same target.

20.   A method of managing CAD data comprising:

10   managing correspondence between a two-dimensional design plane and a three-dimensional design space for the same target; and

managing reference between models configured by a two-dimensional design plane and a three-dimensional

15   design space for the same target.

21.   The method according to claim 20, wherein said correspondence is a spatial attribute of each two-dimensional design plane in a model.

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22.   The method according to claim 20, wherein three-dimensional reference is set between a three-dimensional design space of a first model and a three-dimensional design space of a second model

25   according to two-dimensional reference of a plurality

of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and correspondence in the second model.

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23. A computer-readable storage medium storing a program used to direct a computer to perform:

managing correspondence between a two-dimensional design plane and a three-dimensional design space for 10 the same target; and

managing reference between models configured by a two-dimensional design plane and a three-dimensional design space for the same target.

15 24. The medium storing a program used to direct a computer to perform according to claim 23:

setting three-dimensional reference between a three-dimensional design space of a first model and a three-dimensional design space of a second model 20 according to two-dimensional reference of a plurality of two-dimensional design planes belonging to the first model to a two-dimensional design plane belonging to the second model, correspondence in the first model, and correspondence in the second model; 25 and

automatically assembling a three-dimensional design space belonging to the first model using the three-dimensional reference.